

Problem F: Exotic Food

Our group of heroes, professor Jones, singer Willie Scott and eleven year-old *Short Round*, embark in a quest to recover a sacred stone that was stolen from an Indian village. This takes them to Pankot Palace, where they attend a fancy banquet specially prepared for the Maharajah, the Prime Minister and all their guests. But despite Willie's and Short Round's initial enthusiasm, they quickly realise that the dishes presented to them are maybe a little too exotic for them.



Figure 1: Dessert is ready

The palace staff is aware that sometimes their food is not entirely to their visitors liking, so they implement a new system to increase the overall satisfaction of all guests.

They can prepare a number \mathbf{N} of different dishes, but before serving the banquet, they poll every guest, asking them to choose a “menu type”, and to select two dishes (known as choices \mathbf{A} and \mathbf{B}) according to their preferences. There are three menu types targeted to different tastes:

1. Familiar with local cuisine. For guests who select their two favourite dishes. The guest is satisfied if either \mathbf{A} or \mathbf{B} is served.
2. Unfamiliar with local cuisine. For guests who want to choose the two dishes they find least appetising. The guest is satisfied if either \mathbf{A} or \mathbf{B} is *not* served.
3. Neutral. The guest selects one dish that he may like, and one that he thinks he will dislike. Satisfied if either \mathbf{A} is served, or \mathbf{B} is *not* served.

Given the choices of all guests, can you determine if the palace staff can serve a banquet that satisfies everyone?

Input

Input starts with a positive integer \mathbf{T} , that denotes the number of test cases ($T \leq 100$).

Each case starts with two integer numbers in the first line: the number of dishes (\mathbf{N}) and the number of people sitting at the table (\mathbf{M}). $1 \leq N \leq 10000$. $1 \leq M \leq 5000$.

M lines follow, each one containing three integers: \mathbf{t} , \mathbf{A} and \mathbf{B} , where t is the menu type selected by one person, and A and B are his/her two choices. $1 \leq t \leq 3$. $1 \leq A, B \leq N$.

Output

For each test case, print the case number, and print either **yes** or **no**, indicating if it is possible to serve a banquet that satisfies everyone or not.

Sample Input

```
2
5 7
1 1 2
1 3 4
1 3 5
2 1 3
2 1 4
2 1 5
3 1 5
3 4
1 1 3
2 1 2
3 1 3
3 2 1
```

Output for Sample Input

```
Case 1: yes
Case 2: no
```

Explanation of Sample Cases

In the first case, everyone can be satisfied if, for example, dishes 2, 3 and 4 are served.

In the second case, there is no possible combination of dishes that satisfies the four people.

Note

The test data is large. Make sure to use fast I/O methods.